

# RIVER ROAD CORRIDOR STUDY: MULTIMODAL ASSESSMENT

The River Road Corridor Study includes a high-level assessment of multimodal connections throughout the River Road and Santa Clara neighborhoods and various improvement recommendations. These include projects and operations changes that could increase safety and connectivity with neighborhoods along side streets, to and across River Road, and between River Road and the West Bank Path near the Willamette River. These recommendations seek to work in concert with other efforts underway, including Safe Routes to School, the Beltline Highway interchange, MovingAhead transit and roadway improvements on River Road, and other City and County road and path projects, in order to improve safety and comfort especially for those walking and rolling in the area. This document summarizes findings and recommendations to date.

- An assessment of key side streets with recommendations for design improvements to increase comfort and safety for people walking and bicycling.
- A proposed neighborhood-based walking and bicycling route with recommendations for design improvements to improve comfort and safety for people walking and bicycling.
- A high-level assessment of east-west connections from River Road to the Willamette River and a checklist for bicycle and pedestrian design treatments.
- Transportation connections to the major corridor mixed-use centers proposed as part of MovingAhead
- A discussion of speed management techniques, including
  - Selecting appropriate bikeway and pedestrian facilities,
  - Selecting appropriate traffic calming treatments, and
  - Setting slower speed limits.

In this document 'River Rd' refers to the street, not the neighborhood.

## ASSESSMENT OF KEY SIDE STREETS FOR NEIGHBORHOOD NETWORK

Table 1 (below) presents an assessment of the key side streets proposed for inclusion in the neighborhood network. The key side streets were derived based on discussions with the community and project CAC and TAC during two project workshops. Toole Design recommends adding Ruby Ave to the list of key side streets and has included it in Table 1. If the proposed pedestrian/bicycle bridge over the Beltline Highway is built near Skipper Ave and N Park Ave, Ruby Ave will become a crucial part of the local pedestrian and bicycle network. The assessment includes a summary of existing conditions, including posted speed, traffic volume presented as Average Daily Traffic (ADT), estimated shoulder widths, presence of pedestrian or bicycle facilities, and other notable attributes, such as the presence of a bus route or school. Note that the traffic volumes are based on the most recent data available, however the data is from 2006 to 2013 and may not be reflective of current or future conditions.

Table 1 also includes a set of potential recommended improvements or notes regarding each key side street which should be considered in order to make the streets more comfortable for people walking and bicycling. The recommendations for several streets are to consider adding advisory shoulders. Advisory shoulders are an experimental treatment some jurisdictions are using to provide space for people walking and bicycling along roads without designated pedestrian or bicycle facilities. This treatment calls for dashed pavement markings designating a shoulder. A single vehicle travel lane is provided that is too narrow for two vehicles to pass one another, requiring

one vehicle to move into the advisory shoulder when a pedestrian or bicyclist is not present. The City will need to submit a formal request to experiment to the Federal Highway Administration if the City wants to install advisory shoulders.

On all streets where the roadway space is to be shared between pedestrians, bicyclists, and motor vehicles, the City should consider reducing posted speeds to 20 mph and adding traffic calming to reduce operating speeds to 15 mph, a desired operating speed for shared street environments. Refer to the Speed Management section at the end of this document for a discussion of speed regulation and control techniques, and guidance for selecting appropriate bikeway and sidewalk treatments for locations with different motor vehicle speeds and volumes.

**Table 1. Key Side Street Existing Conditions Assessment and Potential Recommendations**

Key Side Streets	Existing Condition	Potential Recommendations and Notes
Ruby Ave	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• ADT not available</li> <li>• One lane each direction, dashed center line markings</li> <li>• Narrow paved shoulder (less than 3')</li> <li>• No sidewalks for majority of street</li> </ul>	<ul style="list-style-type: none"> <li>• Add Neighborhood Greenway treatments or advisory shoulders with traffic calming</li> </ul>
Hunsaker Ln	<ul style="list-style-type: none"> <li>• 35 mph</li> <li>• 6,000 - 7,000 ADT</li> <li>• One lane each direction, narrow shoulder, residential area</li> <li>• Shoulder width looks like it varies from 2.5' usable width to 4'</li> <li>• No sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Follow proposed project recommendations</li> </ul>
Irving Rd	<ul style="list-style-type: none"> <li>• 35 mph</li> <li>• 7,600 ADT</li> <li>• Two travel lanes, center turn lane</li> <li>• Existing bike lanes</li> <li>• Bike lanes extend to intersections</li> <li>• Dashed bike lanes across intersections</li> <li>• Bus route</li> <li>• Sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Add bus/bike treatments at bus stops</li> <li>• Not comfortable for people of all ages and abilities, consider enhancing lane to buffered bike lane or removing center turn lane to create a separated bike lane</li> <li>• Add marked crosswalks, pedestrian crossing island, and yellow pedestrian warning signs to crossings near bus stops</li> </ul>
Kourt Dr	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• Under 2,500 ADT</li> <li>• Two travel lanes, dashed center lane marking</li> <li>• No sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Follow TSP recommendation for neighborhood greenway treatment and add shared lane markings or advisory shoulders</li> </ul>

Key Side Streets	Existing Condition	Potential Recommendations and Notes
Maxwell Rd	<ul style="list-style-type: none"> <li>• 35 mph</li> <li>• 5,000 – 7,000 ADT</li> <li>• Two travel lanes, solid yellow center line marking, center turn lane in some sections</li> <li>• Existing bike lanes</li> <li>• No bicycle treatments at intersections</li> <li>• Bike lanes extend to intersection</li> <li>• Sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Add dashed bike lane extensions at intersections</li> <li>• Add left turn box to help bicyclists turn left onto River Road</li> <li>• Not comfortable for all ages and abilities, consider adding traffic calming in the form of median islands that also help with pedestrian crossings at uncontrolled intersections</li> <li>• Long-term recommendation is to create a sidepath or add separated bike lanes</li> </ul>
Howard Ave	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• 2,000 – 3,000 ADT</li> <li>• Two travel lanes, solid center lane marking</li> <li>• Looks like 4' paved shoulder</li> <li>• No sidewalk</li> <li>• School zone</li> </ul>	<ul style="list-style-type: none"> <li>• Add traffic calming</li> <li>• Follow TSP recommendation for neighborhood greenway treatments</li> <li>• Existing conditions not comfortable for pedestrians to walk along the street</li> <li>• Recommend adding a sidewalk on at least one side of the street.</li> </ul>
Horn Ln	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• ADT not available</li> <li>• Two travel lanes</li> <li>• Solid center line markings</li> <li>• Narrow paved shoulder (&lt; 4')</li> <li>• No bike treatments at intersections</li> <li>• No sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Add neighborhood greenway treatments or advisory shoulders with traffic calming</li> </ul>
W Hilliard Ln	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• ADT not available</li> <li>• Two travel lanes</li> <li>• Solid center line markings</li> <li>• Narrow shoulder, widens to 3.5' – 4' in some sections</li> <li>• School zone</li> <li>• No sidewalks except sidewalk on one side from intersection with RR to school</li> <li>• No bike treatments at intersections</li> </ul>	<ul style="list-style-type: none"> <li>• Widen shoulder or add advisory shoulders</li> <li>• Add traffic calming</li> <li>• Recommend extending sidewalk past the curve</li> </ul>

Key Side Streets	Existing Condition	Potential Recommendations and Notes
Park Ave	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• 1,000 – 2,000 ADT</li> <li>• Two travel lanes</li> <li>• Solid center line markings</li> <li>• Narrow paved shoulder (3')</li> <li>• Bus route</li> <li>• No sidewalk</li> </ul>	<ul style="list-style-type: none"> <li>• Remove centerline and add wide advisory shoulders (e.g., 6 feet wide shoulders)</li> <li>• Long-term recommendation to add, bike lane or curbed shoulder, sidewalk on one side</li> <li>• Add marked crosswalks and yellow pedestrian warning signs to crossings near bus stops</li> </ul>
Knoop Ln	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• &lt;2,000 ADT</li> <li>• Two travel lanes</li> <li>• No marked centerline</li> <li>• No sidewalk</li> <li>• No bike treatments</li> </ul>	<ul style="list-style-type: none"> <li>• Add advisory shoulders and traffic calming</li> </ul>
Hansen Ln	<ul style="list-style-type: none"> <li>• 25 mph</li> <li>• &lt;2,000 ADT</li> <li>• Two travel lanes</li> <li>• No marked centerline</li> <li>• No sidewalk</li> <li>• No bike treatments</li> </ul>	<ul style="list-style-type: none"> <li>• Add advisory shoulders</li> </ul>

## ASSESSMENT OF PROPOSED NEIGHBORHOOD WALKING AND BICYCLING ROUTE

This section provides an assessment of the proposed Neighborhood Walking and Bicycling Route, as identified at the first project workshop.

- **Potential Bike/Bus Conflicts**
  - There are three areas along the route where there is potential for bus/bike conflicts. Alternative options were reviewed to mitigate the conflicts, but the existing route remains the best option.
    - Park Ave: the route was adjusted to reduce the conflict area to 250 feet.
    - Grove St: There is a half-mile section where the route conflicts with a bus route. An alternative option was explored and eliminated due to the importance of maintaining a route near North Eugene High School.
    - Irving Rd: Nearly two-thirds of a mile of the route on Irving Rd overlaps with a bus route but there is not a better alternate route.
- **General Route Comfort Notes for People Bicycling and Walking**

- Beaver/ Hunsaker is not suitable for people of all ages and abilities (walking or bicycling) under current conditions due to the lack of paved shoulder of sufficient width, lack of protected bicycle facilities, speed limit, and traffic volume. The proposed Beaver/Hunsaker project would improve existing conditions and increase the comfort for people walking and bicycling along this section of the route.
- On Grove St from Silver Ln south to Howard Ave there is a bike lane on only the west side of the street. We recommend adding either an in-street, separated shared use path or **raised shared sidewalk/bike path** in place of the existing bike lane so that the route can be equally as comfortable for bicyclists and pedestrians, and whether it's traversed from north to south or south to north. In either case, if the pathway is to be used for bi-directional travel, the pathway should be separated from motor vehicle traffic with a vertical element, such as a raised curb or flexible delineator posts to increase user comfort and safety. The paved roadway width is approximately 35 feet and provides enough space to fit a bike lane on the east side of the street.
- Along Howard Avenue, the segment is suitable for people bicycling but not for people walking due to the lack of sidewalks and paved facilities. Consider adding a sidewalk on one side of the street and appropriate crossing treatments so the path is accessible to people walking and bicycling from any direction.
- Along residential streets with posted speeds of 25 mph and annual average daily traffic volumes greater than 1,000, pedestrians may not feel comfortable walking on streets without sidewalks or paved shoulders. In the short term, consider adding paved shoulders, or advisory shoulders where paved shoulders are not feasible. In the long term, sidewalks should be added to at least one side of the street. Traffic calming treatments should also be considered to improve safety and comfort for people walking and bicycling and to discourage cut-through traffic.
- In the short term, along residential streets without sidewalks or paved shoulders with posted speeds of 25 mph and peak hour traffic volumes of 500 or less, consider creating more comfortable shared street environments. This could be achieved by reducing operating speeds to 15 mph through reductions in posted speeds and/or adding traffic calming treatments and signs alerting drivers to expect pedestrians to be in the street.
- At all uncontrolled intersections along the route, consider adding high-visibility crosswalk markings and yellow pedestrian warning signs. Nighttime lighting conditions should also be evaluated.

## ASSESSMENT OF EAST-WEST CONNECTIONS FROM RIVER ROAD TO THE WILLAMETTE RIVER

Table 2 presents a list of streets/paths which can be used to connect people walking and bicycling along or near River Rd to the Willamette River. Most locations in the table are existing connections or connections that have already been proposed in other projects (e.g., TSP). The status column indicates whether the connection is existing or proposed. 'Proposed' indicates connections that have been either pre-identified and were proposed as part of ARTS Grant, Moving Ahead, or other projects, or were determined to be easily feasible as part of this project based

on existing conditions. In addition to ensuring there is a connection from River Rd to the Willamette River, it is also important to provide crossing treatments so that people traveling along the west side of River Road can access the connections on the east side of River Rd.

Paving the connections to the West Bank River Path will improve comfort for bicyclists and can increase access for pedestrians. The existing connection at Merry Ln could be improved through paving and widening to at least 5 feet. If possible, all of the proposed connections should be built to accessibility standards.

**Table 2. East-west Connections from River Rd to the Willamette River**

Street or Path to West Bank Path	Path Status	Relationship to Nearby* Crossings and Path Notes
Division Ave	Existing	Signalized intersection at this location
River Ave	Existing	Signalized intersection at this location
Owosso Dr	Existing	Rectangular Rapid-Flashing Beacon nearby, another one is proposed nearby as part of the ARTS Grant
Rosewood Dr / Maxwell Rd	Existing	Signalized intersection at this location
E Howard Ave	Existing	Signalized intersection at this location
Merry Ln	Existing	More than 1,000 ft from a signalized crossing, crossing improvement proposed as part of ARTS Grant
Arbor Dr	Proposed	Signalized intersection at this location. Formalize existing goat path from West Bank Path to Arbor Dr.
E Hillcrest Dr	Existing	Signalized intersection nearby
E Hilliard Ln	Existing	Signalized intersection at this location
Oakleigh Ln	Proposed	Signalized intersection nearby. Extend path from existing street.
McClure	Proposed	Signalized intersection ~1,000 ft away at E Hilliard Ln, crossing improvement proposed as part of ARTS Grant. Formalize existing goat path.
Stults Ave	Existing	Signalized intersection nearby
Stephens Dr	Existing	Signalized intersection nearby at Park Ave
Razor Park Path	Existing	Signalized intersection and Rectangular Rapid-Flashing Beacon nearby
Hansen Ln	Proposed	Not near a signalized crossing, crossing improvement proposed as part of ARTS Grant. There is already a well-established path from River Road to the West Bank Path
Fir Ln	Existing	Enhanced crossing nearby
Thomas Ln	Existing	Signalized intersection nearby

*\*'Nearby' indicates a marked crossing at a signalized intersection or other enhanced crossing (e.g., Rectangular Rapid-Flashing Beacon) is within 600 feet.*

The crossings listed in Table 2 should be evaluated to ensure that they have appropriate pedestrian and bicycle accommodations. Installing appropriate accommodations where they are currently missing will improve safety and

comfort and encourage people walking and bicycling to use the designated crossings. Below is a list of design considerations that should be reviewed for each crossing location.

- Are all crosswalks marked?
- Are advance stop bars needed to discourage drivers from encroaching into the crosswalk?
- Are curb ramps present at all crossings and do they meet ADA design standards?
- Are median islands or curb extensions needed to reduce crossing distances and improve safety?
- Are pedestrian signals installed?
  - Do they provide enough crossing time for pedestrians of all ages and abilities to cross the street comfortably?
  - How frequently are pedestrians given a walk symbol in a signal cycle? How long do pedestrians have to wait to cross the street?
  - Are leading pedestrian intervals needed to reduce conflicts between turning vehicles and pedestrians?
  - Are pedestrian push buttons accessible and installed according to best practices?
- Are bike boxes needed to increase visibility of bicyclists in locations where bicyclists continue straight and there are high volumes of right-turning vehicles?
- If traffic signals require bicyclists to push buttons for signal detection, are the push buttons oriented appropriately so that bicyclists do not have to dismount or ride on the sidewalk? Or is there in-pavement or other bicycle-specific detection provided?
- Are bicycle conflict area pavement markings needed to alert drivers to look bicyclists who may be crossing the intersection?

## TRANSPORTATION CONNECTIONS TO THE MAJOR CORRIDOR MIXED-USE CENTERS

The existing list of proposed projects, including key side streets and recommended crossing improvements will improve access to the major corridor mixed-use centers and, additional projects are not needed. This finding is based on the assumption that the MovingAhead improvements to River Road occur as planned. As it stands, the bicycle and pedestrian improvements to the River Rd corridor proposed as part of MovingAhead include those shown in Table 3. In addition, the following improvements are proposed:

- Some sidewalks will be reconstructed (locations not specified) and curb ramps will be replaced at all locations where construction occurs.
- Bicycle lanes will be routed behind EmX stations and away from travel lanes on River Rd.

**Table 3. MovingAhead Potential Projects along River Rd**

Project Type	Extent	Description
Enhanced pedestrian crossing	River Rd and Division	May include accessible ramps, pedestrian islands, striping, or flashing beacons
Enhanced pedestrian crossing	River Rd and Silver Ln	May include accessible ramps, pedestrian islands, striping, or flashing beacons
Enhanced pedestrian crossing	River Rd and Linder Ln	May include accessible ramps, pedestrian islands, striping, or flashing beacons

Enhanced pedestrian crossing	River Rd and Knoop Ln	May include accessible ramps, pedestrian islands, striping, or flashing beacons
Enhanced pedestrian crossing	River Rd and Hansen Ln	May include accessible ramps, pedestrian islands, striping, or flashing beacons
New pedestrian crossing	River Rd and Briarcliff Ln	May include accessible ramps, pedestrian islands, striping, or flashing beacons
Bicycling improvement	River Rd from Northwest Expressway to Kourt Dr	Protected bike lane on both sides of the street
Bicycling improvement	River Rd from Kourt Dr to Santa Clara Ave	Shared use path
New or improved station	River Rd and W 6th Ave	n/a
New or improved station	River Rd and W 3rd Ave	n/a
New or improved station	River Rd and Thompson Ln	n/a
New or improved station	River Rd and Hansen Ln	n/a
New or improved station	River Rd and Park Ave	n/a
New or improved station	River Rd and Hilliard Ln	n/a
New or improved station	River Rd and Linder Ln	n/a
New or improved station	River Rd and Maxwell Rd	n/a
New or improved station	River Rd and Silver Ln	n/a
New or improved station	River Rd and Division	n/a
New or improved station	River Rd and Hunsaker	n/a
Other roadway improvements	Hunsaker Ln, east side of River Rd	n/a
Dedicated transit lane	Approach to Silver Ln on River Rd	New street configuration with 4 standard travel lanes, two center dedicated transit lanes and two turn lanes
Business access and transit lane	River Rd from the Northwest Expressway to just North of Kourt Dr	New street configuration with bike lanes, shared bus through/vehicle turn lanes, two vehicle through lanes, and a center two-way left turn lane

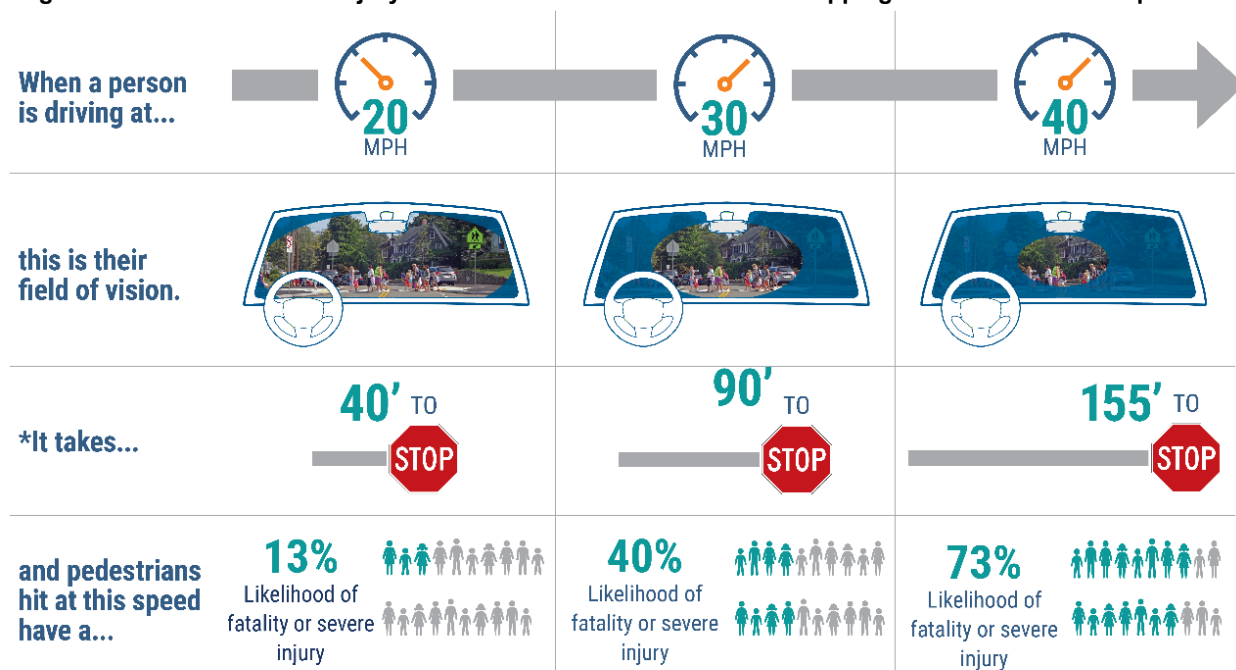


# SPEED MANAGEMENT

Managing traffic speed is an important component of designing safe and comfortable walking and bicycling facilities. Encouraging slower driving speeds in areas where pedestrians or bicyclists are anticipated is important because faster driving speeds increase the risk of a driver being involved in a collision and increase a pedestrian's risk of experiencing a severe injury or fatality when struck by a moving vehicle.<sup>1,2,3</sup> As shown in Figure 1, the faster drivers travel, the less they can see at any one time (e.g., to notice and begin to slow for a crossing pedestrian or bicyclist) and the greater the stopping distance required to stop with sufficient time to prevent a collision.<sup>4,5</sup> Given the important implications of motor vehicle travel speed in the context of multimodal travel, this section provides high-level guidance for

- Selecting appropriate bikeway and sidewalk facilities for different roadway environments.
- Selecting appropriate traffic calming treatments for different roadway environments.
- Setting slower speed limits.

**Figure 1. Pedestrian severe injury risk and driver field of vision and stopping distance at various speeds<sup>4,5</sup>**



\*Braking distances do not account for braking reaction time.

<sup>1</sup> Elvik, R. and T. Vaa, The Handbook of Road Safety Measures, 1st ed., Elsevier, Boston, Mass., 2004.

<sup>2</sup> Gårder, P. "The Impact of Speed and Other Variables on Pedestrian Safety in Maine." Accident Analysis & Prevention, Vol. 36, No. 4, 2004.

<sup>3</sup> Aarts, L. and I. Schagen, "Driving Speed and the Risk of Road Crashes: A Review." Accident Analysis and Prevention, Vol. 38, 2006.

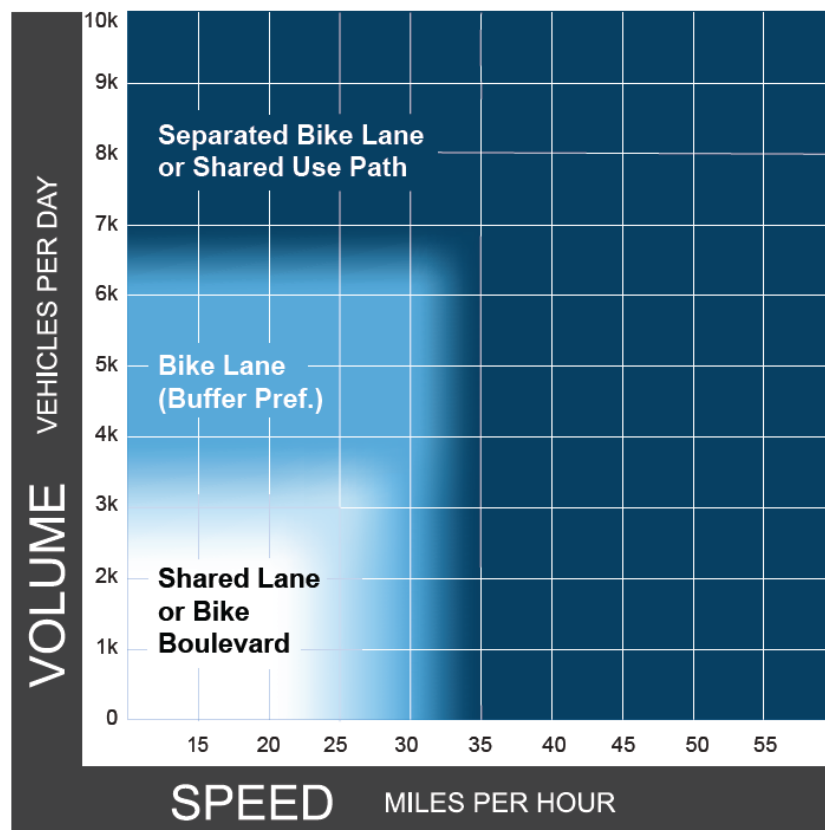
<sup>4</sup> Tefft, B.C., "Impact Speed and a Pedestrian's Risk of Severe Injury or Death," Accident Analysis & Prevention, Vol. 50, 2013.

<sup>5</sup> AASHTO A Policy on Geometric Design of Highways and Streets, 6th ed., American Association of Transportation Officials, Washington, D.C., 2011.

## SELECTING APPROPRIATE BIKEWAY AND SIDEWALK FACILITIES

While many factors influence the decision of which treatment to install (e.g., space available and parking needs), the two factors most important to bicyclist and pedestrian safety and comfort are motor vehicle speed and volume. As discussed above, higher motor vehicle speeds can result in more severe injuries for vulnerable users when traffic collisions occur. Where higher motor vehicle speeds and/or volumes are anticipated the City of Eugene should select bicycle and pedestrian facilities that provide appropriate levels of separation between road users. The level of separation between people walking and biking and motor vehicles should increase as motor vehicle speed and/or volume increases. Figure 2 presents recommended bikeway selection guidance based on motor vehicle speed and volume. Figure 3 presents recommended pedestrian facilities (i.e., alternative sidewalk treatments) for roadways where standard, curbed sidewalks are not feasible. Standard sidewalks should be installed whenever possible as these treatments provide the most separation between users. When selecting a facility, consider existing lighting conditions, sightlines at conflict points, and anticipated users – whether they are adults or families with children.





**Figure 2. Bikeway facility selection chart for urban and suburban environments**



### Notes

- 1 Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.
- 2 Advisory bike lanes may be an option where traffic volume is <3K ADT.

**Figure 3. Pedestrian facilities appropriate for different roadway environments**

Pedestrian Facility	Roadway Context	Example
Shared street (no separation between users)	<ul style="list-style-type: none"> <li>1,000 ADT* or less preferred;**</li> <li>Maximum operating speed 20 mph, less preferred</li> <li>Traffic calming recommended</li> </ul>	
Advisory shoulder	<ul style="list-style-type: none"> <li>Center lane widths should range from 10 to 13.5 feet and 16 to 18 feet;</li> <li>3,000 ADT or less preferred;</li> <li>Posted speed 25 mph or less preferred</li> </ul>	
Paved shoulder (with or without painted buffer)***	<ul style="list-style-type: none"> <li>Any vehicle volume or speed, residential or collector streets with lower speeds and vehicle volumes preferred</li> </ul>	
Barrier separated paved shoulder***	<ul style="list-style-type: none"> <li>35 mph or less</li> </ul>	 <p>Credit: Dongho Chang, City of Seattle</p>

\*Average Daily Traffic Volume

\*\*No more than 100 vehicles during the peak hour of traffic

\*\*\*Includes paved or other ADA recommended surface

Photo source: Google Street View unless otherwise noted

## SELECTING APPROPRIATE TRAFFIC CALMING TREATMENTS

Along some streets, particularly those near parks and schools, it may be helpful to install traffic calming treatments to encourage drivers to travel slower and create safer and more comfortable conditions for people walking and bicycling. There are two types of traffic calming treatments that can be installed, those that use vertical deflection and those that use horizontal deflection. Vertical traffic calming treatments include speed humps (or cushions) and raised crossings; horizontal traffic calming treatments typically include chicanes, curb extensions, and mini-traffic circles. Vertical traffic calming treatments are generally more effective at reducing speed than horizontal treatments and have more limitations on locations where they should be installed.<sup>6,7</sup> For example, vertical traffic calming treatments can be problematic for some large vehicles and are typically not used on transit routes and are often less acceptable on emergency response routes. Horizontal treatments are more applicable where actual and perceived travelway widths are wider and encourage higher speeds. **Error! Not a valid bookmark self-reference.** shows the types of streets where each treatment is typically installed.

**Table 4. Traffic Calming Treatments for Different Street Types\***

Traffic Calming Treatments	Commercial Main Street	Commercial Suburban	Industrial	Mixed-use Neighborhood	Residential Connector	Neighborhood Residential	Neighborhood Residential Curbless	Neighborhood Greenway	Shared Street
<b>Vertical Traffic Calming Treatments</b>									
Speed humps and cushions	X			X	X	X	X	X	X
Raised crossings (also called speed tables)	X			X	X	X	X	X	X
<b>Horizontal Traffic Calming Treatments</b>									
Chicanes	X			X		X		X	X
Neighborhood traffic circles						X	X	X	X
Neckdown/choker/curb extension/bulb out	X		X	X	X	X		X	X
Raised medians / Median Islands	X	X	X	X	X	X	X	X	

\*The street types presented here correspond to the draft street types presented in the latest version of the Draft Eugene Street Design Guide Update.

In shared environments, where pedestrians and motor vehicles are sharing the travel way, pedestrians tend to feel more comfortable walking next to vehicles with operating speeds preferably 15 mph or less. Traffic calming treatments such as chokers, neighborhood traffic circles, chicanes, lane narrowing, SLOW pavement markings, and speed humps can be used to reduce motor vehicle speeds and increase pedestrian safety and comfort on local and collector streets. Yellow, warning speed limit signs or speed reader signs may also be used to encourage drivers to slow down for short sections of roadway.

<sup>6</sup> Mountain, L.J., W.M. Hirst, and M.J. Maher, "Are Speed Enforcement Cameras More Effective Than Other Speed Management Measures? The Impact of Speed Management Schemes on 30 mph Roads," *Accident Analysis & Prevention*, Vol. 37, No. 4, 2005, pp. 742–754.

<sup>7</sup> FHWA, *Engineering Speed Management Countermeasures*, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. 2014.

## SETTING SLOWER SPEED LIMITS

The City of Eugene may choose to explore opportunities to reduce speed limits on residential streets to make them safer for all users. The 2019 state legislative session made it possible for all cities in Oregon to reduce speed limits by 5 mph on locally owned non-arterial roadways.

Cities in Oregon can pursue speed limit changes in several ways.

- **Traditional:** On all arterial streets except those subject to business district statutory speed limits, the City can submit a request to change the speed limit based on factors such as 85<sup>th</sup>-percentile speeds, crash history, traffic volumes, roadway alignment, and 'roadside culture'.<sup>8</sup>
- **Statutory:** On streets with a speed limit specified by law, the City can submit a request using a relatively streamlined process.<sup>9</sup>
  - Oregon statutory speeds are defined as follows:
    - 15 mph - Alleys and narrow residential roadways.<sup>10</sup>
    - 20 mph - Business districts, school zones and some residential.
    - 25 mph - Residential districts, public parks and ocean shores.
    - 65 mph - Interstate highways.
    - 55 mph - Locations not described above.
- **Special Clauses:** On low-traffic neighborhood greenways and residential streets, the City can reduce the speed limit 5 mph below statutory speed limits in certain cases. The City does not have to formally request permission from ODOT in these cases, but it must post updated speed limit signs.
  - Oregon House Bill 3150 went into effect on January 1, 2012 and authorizes cities to reduce speed limits in residence districts if the road authority determines that the average daily traffic volume is less than 2,000, more than 85 percent of traffic is traveling less than 30 mph, and there is a traffic control device (e.g., sign) on the road that indicates the presence of pedestrians or bicyclists.<sup>11</sup>
  - Oregon Senate Bill 558 went into effect on January 1, 2020 and gives all cities in Oregon the ability to designate speed limits 5 mph slower than statutory speeds on locally owned, non-arterial roadways that are located in a residence district.<sup>12</sup>

ORS 801.430 defines a residence district as a non-arterial street within a, "territory not comprising a business district that is contiguous to a highway that: (1) Has access to property occupied primarily by multifamily dwellings; or (2) Has an average of 150 feet or less between accesses or approaches to: (a) Dwellings, churches, public parks within cities or other residential service facilities; or (b) Dwellings and buildings used for business."

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<sup>8</sup> [https://www.oregonlegislature.gov/bills\\_laws/ors/ors810.html](https://www.oregonlegislature.gov/bills_laws/ors/ors810.html), see [https://www.oregon.gov/ODOT/Engineering/Docs\\_TrafficEng/Speed-Zone-Flow-Chart.pdf](https://www.oregon.gov/ODOT/Engineering/Docs_TrafficEng/Speed-Zone-Flow-Chart.pdf)

<sup>9</sup> [https://www.oregonlegislature.gov/bills\\_laws/ors/ors811.html](https://www.oregonlegislature.gov/bills_laws/ors/ors811.html)

<sup>10</sup> Note that the above ORS does not specify a threshold for "narrow" regarding residential roadways.

<sup>11</sup> <https://olis.leg.state.or.us/liz/2011R1/Measures/Overview/HB3150>

<sup>12</sup> <https://olis.leg.state.or.us/liz/2019R1/Measures/Overview/SB558>